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Interdisciplinary Differences Among Saudi University Students in REAP Strategies

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Abstract. This English language teaching and learning study explores the REAP (Reading English for Academic Purposes) strategies used by a sample of 92 university male students from four scientific colleges; Medicine, Medical Sciences, Engineering, and Applied Sciences (23 students from each discipline). It makes use of a widely-known classification of learning strategies, which divides strategies into the categories of memory, cognitive, meta-cognitive, compensation, affective, and social strategies. It introduces a Strategy Inventory for the particular language skill of reading. The main aim is to compare and contrast students' reading strategy choices and investigate if the possible differences were due to students' different levels of reading proficiency. Using the Chi-Square statistical test, association between students' reading proficiency and their majors could be noticed. Also, significant relationship between participants' reading proficiency (and their majors accordingly) on the one hand and their reading strategy choices on the other could be found on the two categories of metacognitive and social strategies. This research paper also shows that other relevant factors such as the amount and manner of good strategy use may well contribute to the differences between efficient and less skilled students of REAP, and hence should not be ignored.

Introduction

Students' learning strategies, motivation, styles and preferences are taken as priorities in today's tasks-oriented process syllabuses (see McDonough, 1995; and Oxford, 2003). These syllabuses are normally based on students' needs and initial negotiations between students and their instructors. This is applicable to all language skills and components presented in any one English language curriculum. In ESP (English for Specific Purposes) curricula, whether EAP (English for Academic Purposes) or EOP (English for Occupational Purposes) programmes, the focus depends particularly on the students' target needs. It could be on one or more of the four language learning skills (reading, writing, listening, and speaking). However, an enquiry of all language learning strategies normally requires a longitudinal study conducted by more than one researcher and with the participation of a considerably huge number of subjects which is beyond the scope of this research paper. Shortage of time, means, and resources is usually the major obstacle to many investigations.

Additionally and more importantly, the reading skill is said to be the most important language learning skill that exists in most ESAP (English for Specific Academic Purposes) courses. This is recognized by quite a good number of researchers who admit that the reading skill should take priority over all other skills in EAP research. (see Tawfiq, 1984; McDonough, 1984; Celani *et al,* 1988; Robinson, 1991; Hamp-Lyons, 2001; Pritchard and Nasr, 2004).

Significance of the Study

My decision to conduct this research is inspired and rationalized by Peacock (2001:272) concluding that "there is a lack of published research on what strategies EAP students use or recommendations for what they should use; and also little on the interdisciplinary use of strategies." In similar vein, Peacock and Ho (2003:183) draw the attention to the importance of studying the interdisciplinary differences in learning habits among EAP students. They agree that "not enough research seems to have investigated strategy use across different academic disciplines. We suggest that there is an urgent need for further research in this area because of the very large number of EAP students in English-medium universities around the world." The need for this particular type of

research is indeed felt by the researcher. A thorough search of any previous study on the interdisciplinary differences in learning strategies between EAP university students in Saudi Arabia or the Arab World was conducted. Unfortunately, no published studies on the topic under investigation could be found.

This research topic concerns the ESP teachers more than other GE (General English) teachers. An important role of the EAP practitioner is to 'tailor' courses that serve the specific language learning needs of students in different disciplines. It is imperative to explore the language learning strategies employed in the ESP learning milieu in general and by the EAP students in particular. This kind of research is instructive in the sense that it can inform the choices of teaching methodologies, material design, and classroom management techniques (McDonough, 1995:122; Alhaidari, 1995:4).

Review of the Literature

One of the earliest studies which touched upon differences in language learning strategies according to academic majors and cultural background (Asian vs. Hispanic) was conducted by Politzer and McGroarty (1985). They referred to learning strategies as ‘behaviors’, and tried to relate learning behaviors to ‘relative’ achievement in English proficiency. Thirty seven students from a two-month intensive ESL (English as a Second Language) summer course (32 males and 5 females) participated in the study. The course was meant to prepare its students for their graduate studies in the USA (United States of America). Twenty seven of the subjects were preparing to study either engineering or physical science, whereas the remaining 10 were preparing to study social sciences and humanities. Students were tested at the beginning and at the end of the course using three language proficiency tests to assess their attainment in listening, grammar, and communicative competence. A yes/no questionnaire was developed from the then available literature on language learning strategies to collect data on students’ evaluations of good (yes) and bad (no) learning behaviors. The researchers found that there were significant differences (at the .05 level) between students in their language behaviors according to both their cultural background and ‘field of specialization’. Politzer and McGroarty (1985:119) concluded, “cultural background (and possibly professional specialization) has a

great deal to do with the type of language learning behavior likely to be used by students.".

Oxford and Nyikos (1989) studied the different variables that could affect students' choice of language learning strategies. One of the investigated factors was the students' fields of specialization and their relationship to learning strategies use. One thousand and two hundred students from an American university participated in this investigation. Half of them were studying scientific specialisms including physical sciences, computer science and engineering. The others were studying social sciences, humanities, education, business and other non-technical majors. They all were asked to complete a 5-point scale (from *always* to *never*) questionnaire[1] which asked respondents to evaluate the frequencies of their use of different language learning strategies. The researchers reported that the variable of students' fields of study had affected students' strategy use significantly. For instance, the students from non-technical departments used some of the memory (memorization), cognitive (natural English use outside the classroom), metacognitive (planning and self-testing) and affective (self-reward) strategies more frequent than did the students from technical majors.

A much more relevant previous study that could be found in the literature was done by Peacock (2001). He investigated the language learning strategies used by EAP students and if they differ according to disciplines and/or gender. His sample included 140 first-year university students (80 males and 60 females) from three different scientific departments, and 43 language teachers from the department of English. Students' majored in Physics (40 students), Mathematics (40students), and Engineering (60 students). The SILL (Strategy Inventory for Language Learning)[2] (Oxford, 1990) and a language proficiency test, both administered in 1998, were used to collect quantitative data on students' choices of learning strategies and their language proficiency respectively. The 90-minute test was on the four language components of listening, grammar, reading, and writing. Similar data was collected from the teachers by means of the same version of the SILL except that they were only asked to rate the strategies in the questionnaire according to

(1) This questionnaire was an earlier version of Oxford's present SILL (Strategy Inventory for Language Learning). It had 121 question items.

(2) See an account of this strategy classification under '**Instruments and Participants of the Study**'.

their importance and 'usefulness' to the students. Semi-structured interviews were made with 70 selected students (the 35 most proficient and the 35 least proficient students) to collect qualitative data for triangulation purposes (in order to cross-check the data obtained from the SILL). The interviewees were asked to provide the most useful language learning strategies in their views. Peacock noted that cognitive and metacognitive strategies in particular seem to be the most important strategy categories for the EAP students. However, he concluded that "the differences in strategy use by discipline and by gender were evidently *not* a result of higher proficiency – the males were significantly *less* proficient than the females, and there were no differences in proficiency by discipline." (p. 283, original emphasis). Therefore, he recommended further research on the different categories of the learning strategies used by students of other academic specialisms and in other EAP contexts, and whether particular strategy categories could be associated with language proficiency.

In a recent study, Peacock and Ho (2003) investigated the differences in language learning strategy use among EAP students from eight different university departments including Building and Construction, Business, Computer Studies, Engineering, English, Mathematics, Primary Education, and Science. The research variables included academic discipline, language proficiency, gender, and age. One thousand and six EAP students (513 males and 493 females) from the City University in Hong Kong participated in this study. All students were asked to complete Oxford's 50-item SILL. A stratified sample of 48 students (6 from each discipline) drawn from questionnaire respondents was chosen for interview. A local English language test was administered to collect data on participants' language proficiency. Significant differences in strategy use among students according to their disciplines, gender, and age were reported. By and large, students of English and other humanities used learning strategies much more often than did science, engineering, and building students. Students of computer studies scored the lowest in cognitive, metacognitive, and memory strategy use. It has also been found that cognitive and metacognitive strategies are positively correlated with L2 (Language Two; could be a second or a foreign language) proficiency. The researchers summed up that cognitive, metacognitive, memory, and to some extent compensation

strategies may be the 'most useful' for EAP students. The social and affective strategies are the least important.

Purpose of the Study

In the ELC (English Language Centre) of the UQU (Umm Al-Qura University) in Makkah Al-Mukarramah, the reading skill is taught as a major component in all the two-term EAP courses provided by the centre. They include language programmes for students of the colleges of Medicine, Medical Sciences (including Lab Medicine, Physiotherapy and Pharmacy), Engineering (including Civil, Electrical, Mechanical and Computer Engineering), and Applied Sciences (including Chemistry, Physics and Biology). This study focuses on the reading skill and compares the RS choices made by the EAP students of the UQU from the four above-mentioned disciplines.

Questions of the Study

Research has shown that 'field of specialization' could well affect the choice of language learning strategies in general (Oxford and Nyikos, 1989). This paper attempts to study the learning strategies used in the particular language component of reading. It investigates the relationship between the subject matter and English RP (Reading Proficiency) on the one hand, and the reading strategies employed by EAP university students of different scientific majors on the other. Answers to two research questions are sought at this level. The first question is: *Are there any differences between ESAP students in their RS (*Reading Strategy) *choices*? The second question is: *Is there any relationship between students' English RP and their RS choices*?

Since there is a strong relationship between EFL (English as a Foreign Language) proficiency and strategy use (Green and Oxford, 1995; Peacock, 2001; Peacock and Ho, 2003; Lan and Oxford, 2003; Yamamori et al, 2003; Griffiths, 2003), it could broadly be predicted as a starting point that there might be some differences between investigated EAP students in their RS choices and/or employment in accordance with their RP.

It is also possible to assume that the differences between ESAP students in reading strategies, if any, are not only in their choices of the

appropriate reading strategies per se, but also in the frequency and depth of employment or use of these good strategies (Politzer and McGroary, 1985:118). Still, whether the students are successful in using reading strategies or not is out of question as it is beyond the scope of this research.

Instruments and Participants of the Study

Oxford's SILL (version 7.0) for ESL/EFL students (1990:293-297) was used in this study to collect data on students' choices and frequency of employment of the reading strategies. This is a reliable[3] 'measurement' questionnaire that has been used worldwide for more than twenty years now (Grainger, 2005:327). Oxford's survey has 50 Question Items (QIs.) on the four major language skills of reading, writing, listening and speaking. These questions are subsumed under the two major categories of direct and indirect learning strategies.

The direct strategies include *memory* strategies[4] (which refer to techniques of recalling and remembering learned information) (9 QIs.), *cognitive* strategies (which refer to conscious mental techniques or behaviors of language learning) (*i.e.,* thinking about the language itself) (14 QIs.) and *compensation* strategies (which refer to techniques of filling information gaps and making up for missing knowledge) (6 QIs.). The indirect categories include *metacognitive* strategies (which refer to techniques or thoughts of planning, organizing, and evaluating one's learning process) (*i.e.*, thinking about how to learn the language) (9 QIs.), *affective* strategies (which refer to techniques or steps of controlling the emotions associated with language learning) (6 QIs.) and *social* strategies (which refer to techniques or actions of cooperating with others and engaging them in one's attempt to learn a language) (6 QIs.).

Ideally, the SILL is meant to study all language skills and sub-skills when they are presented in an integrative manner (see O'malley and Chamot, 1990:170). Unfortunately, this is not the case in the EAP programmes provided by the ELC of the UQU where each language

(3) See *Oxford (1990: 255)* for a thorough discussion about the reliability and validity of this strategy questionnaire.

(4) Some researchers think that memorization (short-term or long-term) is a mental process and should normally be subsumed under the 'cognitive category' (see *O'Malley and Chamot, 1990:85*; *Cohen, 1998:147*).

component (reading, writing, grammar, *etc.*) is taught in separate classes. Thus, since this investigation is particularly on reading strategies, and since it has been a common sense in the field that vocabulary is best acquired through extensive reading (Krashen, 1989:452), only the items of Oxford's SILL which have direct relevance to the skill of reading, or to the highly relevant language component of vocabulary, were used. The strong relationship between these two language components is, both theoretically and practically, well established in the ELT (English Language Teaching) literature (see, for example, Beck *et al*, 1987:147; Krashen, 1993:23; Zimmerman, 1997:121; Leung, 2002:70-71). According to Jordan (1997:75), "vocabulary development is often combined with reading comprehension." Waring and Takaki (2003:130) agree that "people learn most of their vocabulary from reading." Hunt and Beglar (2005:37) state that "inferring vocabulary meaning from context is an essential strategy for developing reading comprehension and promoting lexical acquisition and is commonly employed by successful language learners."

Strategy Inventory for Reading

The employment of a modified version of Oxford's SILL (1990) or the selective and purposeful use of particular items of it is not uncommon in ELT research. Cohen (1998:131) investigated learning strategies of English speaking. For this purpose, he used only the SILL items which he thought to be most relevant to the language skill under investigation (speaking). Cohen (2003:284) also reports two studies, one on reading strategies and the other on listening strategies, in which the researchers selected from Oxford's inventory only the items which seemed particularly pertinent to their investigation topic. See also (Gu, Wen and Wu: 1995) and (Yang, 1999).

Thirty of Oxford's fifty language learning strategy items could particularly be chosen as they seemed capable to provide information on the learning strategies of reading. Only a few of the selected items were slightly modified to enquire specifically about the reading skill, whereas all other items were used without any change, either because they originally enquire about reading and vocabulary, or because they could be extended to more than one skill including reading.

The newly derived inventory could be called the Strategy Inventory for Reading (SIR) (see Appendix I). Thus, my reading-based 6-part

questionnaire has 30 reading strategy items. They include 7 question items for Memory strategies, 7 for Cognitive, 2 for Compensation, 6 for Metacognitive, 5 for Affective and 3 question items for Social strategies (see Table 1 below).

Table 1. Number of question items in each part of both the (SILL) and (SIR).

Strategy Type		No. of items	
		SILL	SIR
Direct	Memory	9	7
	Cognitive	14	7
	Compensation	6	2
Indirect	Metacognitive	9	6
	Affective	6	5
	Social	6	3
TOTAL		50	30

All questionnaire items were translated into Arabic to make certain that participants fully understand them and so, more accurate data could be collected. This way, the questionnaire validity was enhanced and maximized (Wallace, 1998:138). A questionnaire is said to be valid if it meets two demands. Firstly, it should be filled out honestly and correctly. Secondly, when the answers of the non-respondents are compared to the answers of the returnees, they would have a similar distribution (Cohen *et al.,* 2000). This study achieved a 100 per cent response rate. Moreover, the researcher administered the SIR questionnaire in person to secure good understanding and accurate answers on the participants' part. It is to be noted, however, that the newly developed SIR is being used for the first time. That is, a precise measure of its validity is unattainable before its purposeful repeated employment at regular intervals.

One group from each of the four EAP courses was randomly chosen as a sample to take the reading proficiency test, and then to fill out the SIR questionnaire. Ninety-two male(5) subjects participated in this study and provided data (23 students from each group). The alpha reliability of the 30-item SIR for the 92 participating cases was calculated by means of the Cronbach alpha, and the new scale has scored (.83) which indicates a good internal reliability.

(5) Because of problems of accessibility to the girls' section, this study is concerned with male students only.

Two assumptions were particularly considered in the sample. Firstly, it represented the research population sufficiently. The population consisted of the newly-matriculated male EAP students at the UQU. Secondly, it fulfilled the basic requirements of the employed Chi-Square statistical test. That is to say, the obtained data was nominal, and the number of cases in the sub-groups would ideally be between 20 and 50 cases (Borg and Gall, 1989; Cohen *et al.*, 2000; Mertens, 1998; Robson, 2002). Towards the end of the questionnaire, students were asked to state their names, university numbers and academic disciplines (Appendix II).

The SIR classified and scored frequency of RS use as in Table 2 below. Thus, in order to measure the differences between students in the frequency with which they used reading strategies, the RS which scored *never used* was assigned a value of (1)[6], while the RS which scored *always used* was assigned (5).

Table 2. Classification and scoring of the SIR question items.

Frequency of Use	Score
RS is NEVER used	1
RS is RARELY used	2
RS is SOMETIMES used	3
RS is FREQUENTLY used	4
RS is ALWAYS used	5

However, the differences between participants in their choices were investigated based on whether the students used the stated RS or not. In other words, if the RS was chosen by students as *never* or *rarely used*, it would be considered "not used = *No*" and so, would be given the score 1. Otherwise, the RS would be given the score 2 as "used = *Yes*" strategy. Afterwards, the Chi-square statistical tests were calculated at different levels for comparison purposes between students' frequency data to find if there have been significant differences between students of the different departments in their overall RS use and in the use of each RS category.

Reading Proficiency Test

L2 RP was measured by means of a compiled test of 5 short passages (average of 350 words each) with 50 Multiple Choice Questions

(6) (1) is used instead of (0) because the SPSS (Statistical Package for the Social Sciences) data analysis software considers (0) a missing value. In addition, these scores are not used here for measurement but rather for classification purposes.

(MCQs.) (average of 10 MCQs. on each passage). The entire RP test was extracted from a published TOEFL test. The 'known validity and reliability' of the TOEFL (Test of English as a Foreign Language) (Lee and Schallert, 1997) was behind selecting this ready-made pre-established proficiency test. The topics of the chosen passages were meant to be by and large of scientific nature to suit the EAP testees. Test takers have not been asked to prepare for the test. They were provided with the test and the answer sheets, and were given 70 minutes to finish the test which would be marked out of 50 marks. Immediately afterwards, they were asked to fill out the thirty-item (5-point Likert scale) SIR questionnaire in 30 minutes.

Both the RP test and the questionnaire were administered at the very end of the EAP programmes of Medicine, Medical Sciences, Applied Sciences, and Engineering students. That is, towards the end of the second academic term. Consequently, any differences due to the impact of disciplines and text genres on students' choices and applications of reading strategies were preserved and could easily be indicated.

Analysis and Results of the Study

The university admission regulations take students' achievement in high schools as a decisive factor in its admission policy (some other few factors are also considered though). Therefore, it can potentially be expected that participating students of Medicine are the most proficient language-wise from the four investigated disciplines, whereas students of Applied Sciences are the weakest. The results of the RP test came in accordance with this expectation (see Table 3 below). However, they contradicted Peacocks' (2001:283) finding that "there were no differences in proficiency by discipline" (see under **Review of the Literature** for a detailed account of this study).

Table 3. Descriptive statistics of the RP test.

Department	N	Minimum	Maximum	Mean	Std. Deviation
Medicine	23	9.00	27.00	18.26	3.98
Medical Sciences	23	10.00	30.00	16.83	5.30
Engineering	23	8.00	19.00	13.48	3.33
Applied Sciences	23	8.00	24.00	13.00	3.57

The Chi-Square test showed that there was a significant relationship between students' overall choices of reading strategies and their departments (x^2 = 46.56, *df* = 3, $p < .001$). It was necessary to specify the RS categories which could significantly be associated with particular scientific departments. Therefore, Chi-Square tests were applied on students' choices of each RS category (see *Table 4* below).

Table 4. Chi-Square tests of students' choices of each RS category.

RS Category	Pearson Chi-Square value	*df*	Assymp. Sig. (2 sided)
Memory	12.47	3	0.006
Cognitive	6.51	3	0.089
Compensation	8.02	3	0.046
Metacognitive	19.71	3	0.000
Affective	3.85	3	0.278
Social	26.29	3	0.000

Students were found to be significantly different in their choices of the metacognitive and the social RS categories (and in the memory category if *p* is set at less than .05 level). Nevertheless, There seemed to have been a convergence of RS choices between our EAP students in the remaining three RS categories. Having said that, it may be claimed at this point that, by and large, students' choices, and frequency of use accordingly, of the *metacognitive* and the *social* reading strategies are significantly different (see Table 5 below). Nevertheless, their choices of *compensation* and *affective* reading strategies, and their frequency of use accordingly, would be highly comparable.

Table 5. Students' RS categories choice scores and overall use means in percentages rounded to one decimal place (never + rarely = not used –No %; sometimes + frequently + always = used = Yes %).

RS Category	Medicine		MedScience		Engineering		AppScience	
	NO	YES	NO	YES	NO	YES	NO	YES
Memory	31.1	68.9	33.0	67.0	47.8	52.2	41.6	58.4
Cognitive	37.3	62.7	31.7	68.3	41.6	58.4	44.7	55.3
Compensation	39.2	60.8	21.7	78.3	15.2	84.8	32.6	67.4
Metacognitive	23.9	76.1	24.6	75.4	41.3	58.7	42.7	57.3
Affective	51.3	48.7	47.8	52.2	59.1	40.9	55.6	44.4
Social	26.1	73.9	20.3	79.7	47.8	52.2	56.5	43.5
Mean	34.8	65.2	29.8	70.2	42.1	57.9	45.6	54.4

Students of Medical Sciences and Medicine scored the highest in overall frequency of use of RS categories, whereas students of Applied Sciences reported the lowest (see Table 6 below).

Table 6. Students' average frequency scores in RS categories and overall frequency means rounded to two decimal places (1 = never, 2 = rarely, 3 = sometimes, 4 = frequently, and 5 = always).

RS Category	Medicine	MedScience	Engineering	AppScience
Memory	3.03	3.07	2.64	2.83
Cognitive	3.06	3.08	2.83	2.72
Compensation	2.93	3.24	3.83	2.98
Metacognitive	3.47	3.47	2.88	2.80
Affective	2.56	2.63	2.33	2.50
Social	3.23	3.61	2.49	2.39
Mean	3.05	3.19	2.83	2.70

Speaking of RS categories, Table 6 above also shows that *metacognitive* and *social* strategies were the most frequently used reading strategies by students of Medicine and Medical Sciences. This comes in accordance with the 'rather extensive literature' which demonstrates that higher use of metacognitive strategies is usually associated with higher language proficiency (Cohen, 1998:7). *Affective* strategies constituted the least frequently used RS category by students of Medicine, Medical Sciences, and Engineering. Meanwhile, *social* and *affective* strategies were the least frequently used reading strategies by students of Applied Sciences and Engineering who used the *compensation* strategies most frequently.

As for the differences in individual reading strategies (see Appendix III), the MFU (Most Frequently Used) single RS by students from each of the three participating departments of Medicine, Engineering, and Applied Sciences was the metacognitive strategy number 17, which reads, "*I notice my English mistakes and use that information to help me read better*". The MFU single RS by students of Medical Sciences was metacognitive too. It is the RS number 18 which reads, "*I try to find out and try different ways and strategies in order to be a better reader of English.*" Meanwhile, the affective RS number 26 which says, "*I write down my feelings in a language learning diary*" was chosen by students from all four majors as the LFU (Least Frequently Used) single RS.

The ten MFU reading strategies and the ten LFU strategies by students of each of the four scientific majors are shown in numbers in *Table 7* below. (All reading strategies are stated in Appendix I).

Table 7. The ten MFU strategies and the ten LFU strategies by students of the four participating departments.

Medicine		MedScience		Engineering		AppScience	
MFU	LFU	MFU	LFU	MFU	LFU	MFU	LFU
17	26	18	26	17	26	17	26
18	24	21	19	15	5	1	19
8	11	17	24	16	6	10	5
7	16	15	6	10	19	15	29
21	19	22	11	4	2	4	20
22	3	28	27	18	20	8	6
10	5	30	2	7	9	7	27
4	27	29	16	8	24	18	9
15	2	1	12	1	28	22	28
30	14	4	5	13	27	25	13

Four reading strategies (4, 15, 17, and 18) were among the ten MFU strategies by students from all four scientific departments, and four (5, 19, 26, and 27) were among the ten LFU strategies (see Table 8 below).

Table 8. Eight strategy choices agreed upon by students of the four scientific majors as either MFU or LFU.

RS No.	RS	RS Type	Frequency of Use
4	*I use rhymes to remember new English words.*	memory	MFU
5	*I physically act out new English words and expressions which I read in order to memorize and remember them.*	memory	LFU
15	*I make guesses to understand unfamiliar English words which I encounter in reading.*	compensation	MFU
17	*I notice my English mistakes and use that information to help me read better.*	metacognitive	MFU
18	*I try to find out and try different ways and strategies in order to be a better reader of English.*	metacognitive	MFU
19	*I plan my schedule so I will have enough time to read in English.*	metacognitive	LFU
26	*I write down my feelings in a language learning diary.*	affective	LFU
27	*I talk to someone else about how I feel when I am reading in English.*	affective	LFU

Students of Medicine, Engineering, and Applied Sciences agreed that the memory RS 7, and the two cognitive strategies 8 and 10 were among the ten MFU strategies. They also agreed that the memory RS 6 was among the ten LFU strategies. Students of Medicine and Medical Sciences chose the two reading strategies 21 (metacognitive) and 30

(social) among the ten MFU strategies, while the two strategies of 16 (compensation) and 11 (cognitive) were among the ten LFU reading strategies. The two reading strategies 2 (memory) and 24 (affective) scored among the ten LFU strategies by students of Medicine, Medical Sciences, and Engineering. Meanwhile, the metacognitive RS 22 scored among the ten MFU strategies by students of Medicine, Medical Sciences, and Applied Sciences.

Discussion and Interpretation

Since a significant association could be found between students' majors and their RS choices, perhaps the most evident finding of this study is that what differentiates between our good and bad students of REAP (Reading English for Academic Purposes) is both their choices of RS and the range and amount of their use. This, in turn, may seemingly be attributable to the fact that almost all good learners of English are very much aware of the great importance of the English language. They, broadly speaking, show much interest in its learning process. However, this is not an attempt to hypothesize that the differences in RP between EAP students could never be due to some other probable factors such as their ability to use the same reading strategies sufficiently and/or successfully. In other words, it sometimes may well be the case that the more and less proficient EAP readers employ more or less the same gamut of reading strategies. For instance, this study has shown that the metacognitive RS number 17: '*I notice my English mistakes and use that information to help me read better*', has been the MFU single strategy by students of Medicine, Engineering, and Applied Sciences; and that reading strategies 4, 15, and 18 were among the ten MFU strategies by all participating students from all four disciplines. In other words, the differences may well be qualitative rather than quantitative (McDonough, 1995:55-56). They could be more linked to 'strategies orchestration' than to frequency of REAP strategy use (Macaro, 2006:332).

If learning strategies are teachable (Oxford and Nyikos, 1989:291; Peacock and Ho, 2003:194), strategy use training should aim at making the less proficient readers aware of the more proficient students' reading habits and strategy choices, and then training them to adopt these good reading approaches (McDonough, 1995:83; O'Malley, 1987:133). In reading proficiency, our students of Medicine and Medical Sciences are

head and shoulders above other participating students, and hence they could be exemplars of good students of REAP.

Conclusion

This research comes to the conclusion that proficient students of REAP deploy strategies from the categories of metacognitive, social, and, to an extent, memory reading strategies more frequently, and perhaps more effectively, than do the other less proficient students. That is to say, metacognitive and social strategies can be claimed to be the most useful reading strategies for EAP students. Generally speaking, students of applied sciences and engineering do not seem to employ reading strategies sufficiently or in an optimum manner. In particular, they need to be trained to value and successfully deploy strategies from these two categories (metacognitive and social) such as planning, monitoring, and evaluating their reading tasks and activities and trying to find and benefit from opportunities to practice reading in English with others outside the classrooms.

Nevertheless, caution should be exercised whenever conclusions about language learning strategy use and its relationship to language proficiency are to be drawn. The inappropriate employment of even the best known learning strategies could simply yield failure. Cohen (1998:8 & 148) cogently argues that the high frequency with which a good strategy is used may not necessarily lead to successfulness in language task completion. Thus, it "may just be a sign that the learner is continuing to use a given strategy unsuccessfully." Further investigation may well enquire whether the RS choices are deployed by good readers in EAP contexts sufficiently and/or optimally.

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Appendix I

Strategy Inventory for Reading (SIR) based on Oxford's (SILL)

MEMORY

1. I think of relationships between what I already know and new things I read in English.
2. I use new English words in sentences so I can remember them.
3. I remember a new English word that I read by making a mental picture of it.
4. I use rhymes to remember new English words.
5. I physically act out new English words and expressions which I read in order to memorize and remember them.
6. I review Reading lessons.
7. I remember new English words or phrases that I read by remembering their location on the page, on the board, or on a street sign.

COGNITIVE

8. I read new English words and passages several times.
9. I read for pleasure in English.
10. I first skim an English passage (read over the passage quickly) then go back and read carefully.
11. When I read new English words and expressions, I contrast them with similar Arabic words and expressions.
12. I find the meaning of a new English word by dividing it into parts that I understand.
13. I try not to translate word-for-word.
14. I make summaries of information that I read in English.

COMPENSATION

15. I make guesses to understand unfamiliar English words which I encounter in reading.
16. I read English without looking up every new word.

METACOGNITIVE

17. I notice my English mistakes and use that information to help me read better.
18. I try to find out and try different ways and strategies in order to be a better reader of English.
19. I plan my schedule so I will have enough time to read in English.
20. I look for opportunities to read as much as possible in English.
21. I have clear goals for improving my English reading skill.
22. I think about my progress in the English reading skill.

AFFECTIVE

23. I try to relax whenever I feel afraid of reading in English.
24. I give myself a reward or treat when I read well in English.
25. I notice if I am tense or nervous when I am reading in English.
26. I write down my feelings in a language learning diary.
27. I talk to someone else about how I feel when I am reading in English.

SOCIAL

28. I practice reading in English with other students.
29. I ask questions in English during reading lessons.
30. I try to learn about the culture of English speakers.

Appendix II

ضع علامة (√) في المربع المناسب الذي يعبر عن مدى استخدامك لاستراتيجيات تعلم القراءة بالإنجليزية علماً بأن:

لا أبداً = الطريقة المذكورة **لا** تنطبق عليك أبداً

نادراً = الطريقة المذكورة لا تنطبق عليك **إلا نادراً**

أحياناً = الطريقة المذكورة تنطبق عليك **أحياناً**

غالباً = الطريقة المذكورة تنطبق عليك **غالباً**

دائماً = الطريقة المذكورة تنطبق عليك دائماً

MEMORY	لا أبداً	نادراً	أحياناً	غالباً	دائماً
١. أحاول الربط بين المعلومات الجديدة في درس القراءة وما أعرفه سابقاً لتسهيل تذكرها.					
٢. أستخدم الكلمات الإنجليزية الجديدة في جمل لكي أتمكن من تذكرها.					
٣. أرسم صورة ذهنية للكلمات الجديدة التي أتعلمها في القراءة لكي أتمكن من تذكرها بسهولة.					
٤. أتذكر الكلمات الجديدة عن طريق ربطها بكلمات عربية أو إنجليزية مشابهه لها في النطق.					
٥. أقوم بأداء وتمثيل بدني للمقاطع والكلمات التي أقرأها (لكي أتمكن من حفظها وتذكرها).					
٦. كثيراً ما أقوم بمراجعة دروس القراءة.					
٧. أتذكر الكلمات ومقاطع الجمل الإنجليزية الجديدة التي أقرأها عن طريق تذكر مواقعها في الصفحة أو السبورة أو اللوحة الإرشادية في الشارع.					

دائماً	غالباً	أحياناً	نادراً	لا أبداً	*COGNITIVE*
					٨. أقوم بتكرار قراءة الكلمات والقطع الإنجليزية الجديدة عدة مرات.
					٩. أقرأ نصوصاً إنجليزية للتسلية.
					١٠. أبدأ قراءة القطعة الإنجليزية بالمرور عليها بشكل سريع ثم أعود وأقرأها ثانية بدقة وعناية أكثر.
					١١. أبحث عن كلمات وصيغ في اللغة العربية تشبه (في حروفها أو نطقها) الكلمات والصيغ الإنجليزية الجديدة التي أقرأها وأقارن بينها.
					١٢. أتوصل إلى فهم معاني الكلمات الإنجليزية الجديدة عن طريق تحليلها إلى أجزائها ومكوناتها الأساسية.
					١٣. أحاول أن أتجنب الترجمة الحرفية (كلمة بكلمة) للمقاطع والجمل الإنجليزية.
					١٤. ألخص المعلومات والقطع الإنجليزية التي أقرأها.
دائماً	غالباً	أحياناً	نادراً	لا أبداً	*COMPENSATION*
					١٥. أخمن معنى الكلمات الجديدة التي أجدها في النص الإنجليزي ولا أعرف معناها.
					١٦. أقرأ النصوص الإنجليزية بدون الرجوع المتكرر إلى القاموس (المعجم) اللغوي لمعرفة معنى كل الكلمات الجديدة.
دائماً	غالباً	أحياناً	نادراً	لا أبداً	*METACOGNITIVE*
					١٧. ألاحظ أخطائي في اللغة الإنجليزية وأستفيد منها لكي أقرأ بشكل أصح.
					١٨. أحاول أن أكتشف وأجرب الطرق والأساليب التي تساعدني في قراءة الإنجليزية بشكل أفضل.

					١٩. أنظم جدولي اليومي ووقتي بحيث أوفر وقتاً كافياً للقراءة بالإنجليزية.
					٢٠. أبحث عن أي فرصة سانحة للقراءة باللغة الإنجليزية وأستغلها لقراءة أكبر قدر ممكن.
					٢١. لدي أهداف واضحة لتحسين مهارتي في القراءة.
					٢٢. أدرس وأتابع تطور مستوى مهارتي في القراءة باللغة الإنجليزية.
دائماً	**غالباً**	**أحياناً**	**نادراً**	**لا أبداً**	***AFFECTIVE***
					٢٣. أحاول أن أسترخي كلما شعرت بخوف عند قراءة النصوص الإنجليزية.
					٢٤. أكافئ نفسي عندما أقرأ اللغة الإنجليزية بشكل جيد.
					٢٥. أقوم بمراقبة وملاحظة أي توتر يظهر عليّ عند القراءة باللغة الإنجليزية.
					٢٦. أدون مشاعري وأحاسيسي في مذكراتي الخاصة بتعلم اللغة.
					٢٧. أتحدث مع الآخرين حول ما أشعر به عندما أقرأ باللغة الإنجليزية.
دائماً	**غالباً**	**أحياناً**	**نادراً**	**لا أبداً**	***SOCIAL***
					٢٨. أشارك طلاب آخرين في ممارسة قراءة الإنجليزية معاً.
					٢٩. أطرح أسئلتي باللغة الإنجليزية في درس القراءة.
					٣٠. أحاول أن أتعرف على ثقافة أصحاب اللغة الإنجليزية.

Students' Code : .... : رمز الطالب
College :.. : الكلية
Department :... :القسم

Appendix III

Students' ***mean*** frequency scores in each of the 30 strategies rounded to two decimal places (1=never, 2=rarely, 3=sometimes, 4=frequently, and 5=always).

Strategy Type	RS No	Medicine	Medical Sciences	Engineering	Applied Sciences
Memory	1	3.35	3.43	3.09	3.48
	2	2.65	2.83	2.17	2.78
	3	2.57	2.96	2.61	2.87
	4	3.57	3.43	3.61	3.39
	5	2.61	2.91	1.87	1.91
	6	2.74	2.65	1.87	2.13
	7	3.74	3.30	3.26	3.26
Cognitive	8	3.78	3.43	3.22	3.30
	9	2.74	2.96	2.30	2.30
	10	3.65	3.39	3.61	3.43
	11	2.35	2.74	2.52	2.61
	12	3.00	2.87	2.52	2.48
	13	3.13	3.09	3.09	2.39
	14	2.65	3.09	2.52	2.48
Compensation	15	3.48	3.65	3.83	3.43
	16	2.39	2.83	3.83	2.52
Metacognitive	17	4.13	3.78	4.09	3.52
	18	4.13	3.87	3.52	3.26
	19	2.43	2.61	1.87	1.78
	20	2.70	3.04	2.00	2.00
	21	3.74	3.87	3.09	3.09
	22	3.70	3.65	2.70	3.13
Affective	23	3.22	3.00	2.91	2.83
	24	2.17	2.61	2.35	2.83
	25	3.39	3.04	2.65	3.13
	26	1.35	1.74	1.22	1.48
	27	2.61	2.78	2.48	2.22
Social	28	2.91	3.65	2.35	2.30
	29	3.30	3.52	2.57	1.91
	30	3.48	3.65	2.57	3.09

الفروق التخصصية في استراتيجيات قراءة اللغة الإنجليزية لأغراض أكاديمية لدى الطلاب السعوديين في المرحلة الجامعية

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المستخلص. هذا البحث في حقل تعليم وتعلم اللغة الإنجليزية، يدرس استراتيجيات القراءة الأكاديمية التي يستخدمها الطلاب السعوديون في المرحلة الجامعية من أربع كليات علمية مختلفة هي: الطب، والعلوم الطبية، والهندسة، والعلوم التطبيقية. وتشمل عينة الدراسة ٩٢ طالباً (٢٣ طالباً من كل كلية). وتهدف الدراسة إلى استكشاف ومقارنة الفروق بين الطلاب في اختياراتهم من استراتيجيات القراءة, والبحث في علاقة هذا الاختلاف – إن وجد – بتخصصات الطلاب وكفاءة القراءة لديهم. ومن خلال هذه الدراسة يتم تقديم استبيان خاص باستراتيجيات تعلم مهارة القراءة اللغوية، مقتبسا أصلا من تصنيف أكسفورد المعروف لاستراتيجيات التعلم، والذي يقسم الاستراتيجيات إلى ست مجموعات هي: استراتيجيات الحفظ، والإدراك، والتنظيم المعرفي، والتعويض، والعاطفة، والاستراتيجيات المجتمعية. وقد أظهرت الدراسة وجود رابط بين كفاءة القراءة الأكاديمية لدى الطلاب من جهة وتخصصاتهم العلمية من جهة أخرى، كما تم إثبات وجود علاقة ذات مغزى بين اختيارات الطلاب المشاركين في الدراسة من استراتيجيات التنظيم المعرفي والاستراتيجيات المجتمعية مقابل كفاءة القراءة لديهم وتخصصاتهم العلمية تبعاً لذلك. وهذا البحث يدعو في خاتمته إلى أهمية عدم إهمال دراسة عوامل أخرى قد تساهم بشكل

كبير في وجود فروق غير تخصصية بين طالب القراءة الأكاديمية للغـة الإنجليزيـة المـتقن والأقـل إتقانـاً مثـل القـدرة علـى اسـتخدام استراتيجيات جيدة للقراءة بشكل مثالي وفعال وبمعدل تكرار كاف.